September 24, 2002

RE: ***Packaging Corporation of America*** ***053-15665-00056***

TO: Interested Parties / Applicant

FROM: Paul Dubenetzky
Chief, Permits Branch
Office of Air Quality

Notice of Decision: Registration

Please be advised that on behalf of the Commissioner of the Department of Environmental Management, I have issued a decision regarding the enclosed matter. Pursuant to IC 4-21.5-3-4 (d) this order is effective when it is served. When served by U.S. mail, the order is effective three (3) calendar days from the mailing of this notice pursuant to IC 4-21.5-3-2(e).

If you wish to challenge this decision, IC 4-21.5-3-7 require that you file a petition for administrative review. This petition may include a request for stay of effectiveness and must be submitted to the Office of Environmental Adjudication, ISTA Building, 150 W. Market Street, Suite 618, Indianapolis, IN 46204, **within (18) eighteen days of the mailing of this notice**. The filing of a petition for administrative review is complete on the earliest of the following dates that apply to the filing:

(1) the date the document is delivered to the Office of Environmental Adjudication (OEA);
(2) the date of the postmark on the envelope containing the document, if the document is mailed to OEA by U.S. mail; or
(3) the date on which the document is deposited with a private carrier, as shown by receipt issued by the carrier, if the document is sent to the OEA by private carrier.

The petition must include facts demonstrating that you are either the applicant, a person aggrieved or adversely affected by the decision or otherwise entitled to review by law. Please identify the permit, decision, or other order for which you seek review by permit number, name of the applicant, location, date of this notice and all of the following:

(1) the name and address of the person making the request;
(2) the interest of the person making the request;
(3) identification of any persons represented by the person making the request;
(4) the reasons, with particularity, for the request;
(5) the issues, with particularity, proposed for consideration at any hearing; and
(6) identification of the terms and conditions which, in the judgment of the person making the request, would be appropriate in the case in question to satisfy the requirements of the law governing documents of the type issued by the Commissioner.

If you have technical questions regarding the enclosed documents, please contact the Office of Air Quality, Permits Branch at (317) 233-0178. Callers from within Indiana may call toll-free at 1-800-451-6027, ext. 3-0178.

Enclosure

Paul Olsen
Packaging Corporation of America
520 South First Street
Gas City, Indiana 46933

Re: Registered Construction and Operation Status,
053-15665-00056

Dear Mr. Olsen:

The application from Packaging Corporation of America, received on October 24, 2000, has been reviewed. Pursuant to the provisions in 326 IAC 2-5.5, the following corrugated boxes manufacturing plant, located at 520 South First Street, Gas City, Indiana, 46933 is being re-registered:

(a) Two (2) natural gas-fired space heaters, each has a heat input capacity of 2.2 million British Thermal Units per hour (mmBtu/hr);

(b) Two (2) natural gas fired boilers, identified as BL1 and BL2, each constructed in 1987, with a maximum heat input capacity of 10.50 mmBtu/hr and 17.25 mmBtu/hr, respectively, exhausting through stack ID # 001 and 002, respectively;

(c) One (1) printing operation, identified as INK, with a maximum ink application rate of 55 pounds per hour (lbs/hr) and unprinted corrugated sheets feed of 15 tons per hour, exhausting through the general building ventilation system, identified as ID # 003, consisting of the following equipment:

(1) One (1) flexographic printing press, identified as # 254, installed in 2001, with a maximum line speed of 850 feet per minute (ft/min), a printing width of 75 inches, and a maximum ink coverage of 0.17 pounds per million square inches (lbs/MMin^2);

(2) One (1) flexographic printing press, identified as # 281 with a maximum line speed of 900 feet per minute (ft/min), a printing width of 106 inches, and a maximum ink coverage of 0.17 lbs/MMin^2;

(3) Two (2) flexographic printing presses, identified as # 317 and # 318 each with a maximum line speed of 750 ft/min, a printing width of 79 inches, and a maximum ink coverage of 0.17 lbs/MMin^2;

(4) One (1) flexographic printing press, identified as # 324 with a maximum line speed of 1000 ft/min, a printing width of 110 inches, and a maximum ink coverage of 0.17 lbs/MMin^2;

(5) One (1) letter press, identified as # 118 with a maximum line speed of 350 ft/min, a maximum printing width of 78 inches, and a maximum ink coverage of 0.17 lbs/MMin^2;

(6) One (1) letter press, identified as # 122 with a maximum line speed of 350 ft/min, a maximum printing width of 92 inches, and a maximum ink coverage of

0.17 lbs/MMin^2.

(d) Glue/adhesive application, identified as G/A, with a maximum rate of 25.0 pounds of glue/adhesive per hour, exhausting through the general building ventilation system, identified as ID # 003;

(e) One (1) starch storage silo, identified as S1, with a maximum storage capacity of 217,300 pounds of starch, and a handling rate of 680 lbs/hr, utilizing a starch silo filtering system for particulate matter control, exhausting through stack ID # 004; and

(f) One (1) paper scrap collection cyclone/baler, identified as PAP, with a maximum rate of 3,000 pounds of paper per hour, utilizing a paper separation cyclone for particulate matter control, exhausting through stack ID # 005.

The following conditions shall be applicable:

1. Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following, unless otherwise stated in this permit:

   (a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

   (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor in a six (6) hour period.

2. Pursuant to 326 IAC 6-2-4 (Emission Limitations for Facilities Specified in 326 IAC 6-2-1(c)), particulate emissions from the two (2) natural gas fired boilers, shall be limited as follows:

Boiler ID	Heat Input Capacity	PM Emission Limit (pound/million Btu)
BL1	10.5	0.46
BL2	17.25	0.46

The PM limits shall be determined using the following equation:

$Pt = \frac{1.09}{Q^{0.26}}$ where: Pt = Pounds of particulate matter emitted per mmBtu heat input.
Q = Total source maximum operating capacity rating in mmBtu per hour.

3. Pursuant to 326 IAC 6-3 (Process Operations), the particulate matter (PM) emissions from the starch silo and the paper scrap collection cyclone/baler station shall be limited as follows:

Facility	Process Weight Rate (ton/hour)	PM Emission Limit (pound/hour)
Starch silo, S1	0.34	1.99
Paper scrap collection cyclone/baler station, PAP	1.5	5.37

The PM limits shall be determined using the following equation:

Interpolation and extrapolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 4.10\ P^{0.67}$ where E = rate of emission in pounds per hour and
P = process weight rate in tons per hour

This registration is a revised registration issued to this source. The source may operate according to 326 IAC 2-5.5.

An authorized individual shall provide an annual notice to the Office of Quality that the source is in operation and in compliance with this registration pursuant to 326 IAC 2-5.5-4(a)(3). The annual notice shall be submitted to:

Compliance Data Section
Office of Air Quality
100 North Senate Avenue
P.O. Box 6015
Indianapolis, IN 46206-6015

no later than March 1 of each year, with the annual notice being submitted in the format attached.

An application or notification shall be submitted in accordance with 326 IAC 2 to the Office of Air Quality (OAQ) if the source proposes to construct new emission units, modify existing emission units, or otherwise modify the source.

Sincerely,

Paul Dubenetzky, Chief
Permits Branch
Office of Air Quality

APD

cc: File - Grant County
Grant County Health Department
Air Compliance - Jim Thorpe
Permit Tracking - Janet Mobley
Technical Support and Modeling - Michele Boner
Compliance Data Section - Karen Nowak

Registration
Annual Notification

This form should be used to comply with the notification requirements under 326 IAC 2-5.5-4(a)(3).

Company Name:	**Packaging Corporation of America**
Address:	**520 South First Street**
City:	**Gas City**
Authorized individual:	**Paul Olsen**
Phone #:	**(765) 674-9781**
Registration #:	**053-15665-00056**

I hereby certify that **Packaging Corporation of America** is still in operation and is in compliance with the requirements of Registration **053-15665-00056**.

Name (typed):
Title:
Signature:
Date:

Indiana Department of Environmental Management (IDEM)
Office of Air Quality

Technical Support Document (TSD) for Registered Emission Units

Source Background and Description

Source Name: Packaging Corporation of America
Source Location: 520 South First Street, Gas City, Indiana 46933
County: Grant
Registration No.: 053-15665-00056
SIC Code: 2653
Permit Reviewer: Aida De Guzman

The Office of Air Quality (OAQ) has reviewed an application from Packaging Corporation of America, a corrugated boxes manufacturing plant, requesting the revision of Registration 053-12891-00056 issued on February 1, 2001. The revision requests are the following:

(a) Changing the authorized individual in the Annual Notification Form,
(b) Deleting space heaters that were never installed,
(c) Installation of a new flexographic printing press,
(d) In item (c)(2) of the emission units description, the first letter press identification should be changed to #118, instead of #188,
(e) In item (c)(1) of the emission units description, the press maximum line speeds, print widths, and maximum coverage were incorrect in the previous registration and should be changed as shown in the table below:

Press ID	#281	#317	#318	#324	#118	#122
Maximum Line Speed (ft/min)	900	750	750	1000	350	350
Maximum Print Width (inches)	106	79	79	110	78	92

PCA realized that the information provided in the previous registration applications do not reflect the printing width of the machine but rather the circumference of the print cylinder. The maximum coverage for all the presses should also be changed from 1.74 pounds per million square inches ($lb/MMin^2$) to 0.17 $lb/MMin^2$, which is a function of printer's line speed.

(f) Item (c) of the emission units description should refer to a "printing operation" instead of "application of inks station" because printing is done at several locations, not just one station. Also, the maximum ink application and unprinted corrugated sheet feed rates were incorrect in the previous registration. The maximum rate of ink application should be changed to 55 pounds per hour (lbs/hr) and the maximum feed rate of unprinted corrugated sheet should be changed to 15 tons per hour.

(g) Item (d) of the emission units description should refer to "Glue/adhesive application" instead of "One (1) application of glues/adhesive station" because glue/adhesive is applied at several locations, not just one station. Also, the maximum glue/adhesive application rate

was incorrect in the previous registration and should be changed to 25 lbs/hr.

(h) In item (e) of the emission units description, the maximum starch storage silo capacity was incorrect in the previous registration and should be changed to 217,300 pounds. The maximum starch handling rate was also incorrect and should be changed to 680 lbs/hr.

Response: The source will be re-registered to address all the requested changes (changes are **bolded** and deletions are ~~struck-through~~ for emphasis):

Emission Units

(a) ~~The proposed installation of twenty-eight (28)~~ **Two (2**) natural gas-fired space heaters, each has a heat input capacity of ~~0.40~~ **2.2** million British Thermal Units per hour (mmBtu/hr);

(b) Two (2) natural gas fired boilers, identified as BL1 and BL2, each constructed in 1987, with a maximum heat input capacity of 10.50 mmBtu/hr and 17.25 mmBtu/hr, respectively, exhausting through stack ID # 001 and 002, respectively;

(c) One (1) **printing operation** ~~application of inks station~~, identified as INK, with a maximum ink **application** rate of ~~water-based 17.1~~ **55** pounds per hour **(lbs/hr) and** unprinted corrugated sheets **feed** of ~~650 pounds~~ **15 tons** per hour, ~~and letterpress inks of 0.34 pounds per hour,~~ exhausting through the general building ventilation system, identified as ID # 003, consisting of the following equipment:

~~(1) Four (4) flexographic printing presses, identified as # 281, 317, 318, and 324, each with a maximum line speed of 483, 432, 520, and 583 feet per minute, respectively, and a maximum print width of 60, 37.5, 37.5, and 48.5 inches, respectively;~~

(1) One (1) flexographic printing press, identified as # 254, installed in 2001, with a maximum line speed of 850 feet per minute (ft/min), a printing width of 75 inches, and a maximum ink coverage of 0.17 pounds per million square inches (lbs/MMin^2);

(2) One (1) flexographic printing press, identified as # 281 with a maximum line speed of 900 feet per minute (ft/min), a printing width of 106 inches, and a maximum ink coverage of 0.17 lbs/MMin^2;

(3) Two (2) flexographic printing presses, identified as # 317 and # 318 each with a maximum line speed of 750 ft/min, a printing width of 79 inches, and a maximum ink coverage of 0.17 lbs/MMin^2;

(4) One (1) flexographic printing press, identified as # 324 with a maximum line speed of 1000 ft/min, a printing width of 110 inches, and a maximum ink coverage of 0.17 lbs/MMin^2;

(5) ~~Two~~ **One** (**1** ~~2~~) letter press, identified as # ~~188 and 122, each~~ **118** with a maximum line speed of **350 ft/min** ~~183 and 246 feet per minutes, respectively~~, a maximum printing width of **78 inches**, **and a maximum ink coverage of 0.17 lbs/MMin^2** ~~of 37.5 and 42 inches, respectively;~~

(6) One (1) letter press, identified as # 122 with a maximum line speed of 350

ft/min, a maximum printing width of 92 inches, and a maximum ink coverage of 0.17 lbs/MMin^2.

(d) ~~One (1) application of glues/adhesive station~~ **Glue/adhesive application**, identified as G/A, with a maximum rate of ~~16,000~~ **25.0** pounds of glue/adhesive per hour, exhausting through the general building ventilation system, identified as ID # 003;

(e) One (1) starch storage silo, identified as S1, with a maximum storage capacity of ~~320,000~~ **217,300** pounds of starch**, and a handling rate of 680 lbs/hr**, utilizing a starch silo filtering system for particulate matter control, exhausting through stack ID # 004; and

(f) One (1) paper scrap collection cyclone/baler, identified as PAP, with a maximum rate of 3,000 pounds of paper per hour, utilizing a paper separation cyclone for particulate matter control, exhausting through stack ID # 005.

Recommendation

The staff recommends to the Commissioner that the operation be approved. This recommendation is based on the following facts and conditions:

Information, unless otherwise stated, used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on March 5, 2002, with additional information received on May 13, 2002; and additional information received via e-mail August 12, 2002, and September 4, 2002.

Emissions Calculations

(a) Printing Operation: See Page 4 and 5 TSD Appendix A for detailed emission calculations.

(b) Natural Gas -Fired Boiler , ID BL1: See Page 2 of 5 TSD Appendix A for detailed calculations.

(c) Natural Gas -Fired Boiler , ID BL2: See Page 3 of 5 TSD Appendix A for detailed calculations.

(d) Starch Handling/Silo:
Silo is controlled by a Filtering System with 95% efficiency.

The Emission Factor was obtained from EPA's Compilation of Emission Factors (AP-42), Version 5, Chapter 11.17, Table 11.17-4 (Emission Factors for Lime Manufacturing Raw Material and Product Processing/Handling - Product Transfer Conveying). This emission factor (2.2 lb/ton material) most represents the loading practices for the silo.

PM/PM10 Emissions	=	680 lb/hr * ton/2000 lb * 2.2 lb/ton * 8760 hrs/yr * ton/2000 lb
	=	3.28 tons/year (uncontrolled)
	=	3.28 tons/yr (1-0.95)
	=	0.16 ton/yr (controlled)

(e) Glue/Adhesive Application:

VOC Emission	=	25 lb/hr * 0.12% wt % VOC * 8760 hr/yr * ton/2000 lb

= 0.13 ton/year

(f) Paper Scrap Collection Cyclone/Baler:
The plant scrap paper handling system incorporates a paper separation cyclone and baler. Scrap paper is collected at various pick-up points located throughout the plant and conveyed pneumatically to the paper separation cyclone. The cyclone separates the scrap from the air, and the scrap is conveyed to the paper baler. Besides separating the scrap, the cyclone also controls particulate emissions from handling the scrap.

As determined in the previous Registration 053-12891-00056, issued on February 1, 2001 0.1 % of the paper handled is Particulate emissions.

PM/PM10 Emission = 3,000 lbs/hr * 0.1% * 8760 hrs/yr * ton/2000 lbs
= 13.14 tons/yr (uncontrolled)
= 13.14 tons/yr (1 - 0.95)
= 0.66 ton/yr (controlled)

Uncontrolled Potential To Emit for the Source

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as "the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA."

This table reflects the PTE before controls. Control equipment is not considered federally enforceable until it has been required in a federally enforceable permit.

Pollutant	Emissions (ton/yr)
PM	16.62
PM10	17.42
SO_2	0.00
VOC	14.5
CO	11.9
NOx	14.1

Hazardous Air Pollutants	Emissions (tons/year)
Glycol Ethers	2.57
Benzene	2.96×10^{-4}
Dichlorobenzene	2.6×10^{-4}
Formaldehyde	1.056×10^{-2}
Hexane	2.5×10^{-1}

Toluene	4.88×10^{-4}
Lead	7.05×10^{-5}
Cadmium	1.55×10^{-4}
Chromium	1.98×10^{-4}
Manganese	5.26×10^{-5}
Nickel	2.9×10^{-4}
Worst Single HAP	2.82
Combined HAPs	2.84

Justification for Approval Level

(a) The existing source is re-registered pursuant to 326 IAC 2-5.5, since its potential to emit particulate matter (PM) or particulate matter less than ten microns (PM10) is greater than five (5) tons per year but less than 25 tons per year; and

(b) The source potential to emit oxides of nitrogen (NOx) or volatile organic compounds (VOC) is greater than ten (10) tons per year but less than 25 tons per year.

Limited/Controlled Potential to Emit

The table below summarizes the total potential to emit, reflecting all limits, of the significant emission units.

	Limited Potential to Emit (tons/year)						
Process/facility	PM	PM-10	SO_2	VOC	CO	NO_X	HAPs
Printing Presses	0.0	0.0	0.0	13.57	0.0	0.0	2.57
Space Heaters	0.0	0.1	0.0	0.1	1.6	1.9	0.037
Boilers	0.2	0.9	0.0	0.7	10.3	12.2	0.23
Glue/Adhesive Application	0.0	0.0	0.0	0.13	0.0	0.0	0.0
Starch Handling/Silo	0.16	0.16	0.0	0.0	0.0	0.0	0.0
Paper Scrap Collection Cyclone/Baler	0.66	0.66	0.0	0.0	0.0	0.0	0.0
Total Emissions	1.02	1.82	0.0	14.5	11.9	14.1	2.84

This existing re-registered source is **not** a major stationary source because no attainment pollutant

is emitted at a rate of 250 tons per year or greater and it is not in one of the 28 listed source categories. Therefore, pursuant to 326 IAC 2-2, and 40 CFR 52.21, the PSD requirements do not apply.

County Attainment Status

The source is located in Grant County.

Pollutant	Status
PM-10	attainment
SO_2	attainment
NO_2	attainment
Ozone	attainment
CO	attainment
Lead	not determined

(a) Volatile organic compounds (VOC) are precursors for the formation of ozone. Therefore, VOC and NOx emissions are considered when evaluating the rule applicability relating to the ozone standards. Grant County has been designated as attainment or unclassifiable for ozone. Therefore, VOC emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

(b) Grant County has been classified as attainment or unclassifiable for all the other criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

(c) Fugitive Emissions
Since this type of operation is not one of the 28 listed source categories under 326 IAC 2-2 and since there are no applicable New Source Performance Standards that were in effect on August 7, 1980, the fugitive PM emissions are not counted toward determination of PSD and Emission Offset applicability.

Part 70 Permit Determination

326 IAC 2-7 (Part 70 Permit Program)
This existing source is not subject to the Part 70 Permit requirements because the potential to emit (PTE) of:

(a) each criteria pollutant is less than 100 tons per year,
(b) a single hazardous air pollutant (HAP) is less than 10 tons per year, and
(c) any combination of HAPs is less than 25 tons/year.

This existing source is being re-registered based on the new permitting rule, 326 IAC 2-5.5.

Federal Rule Applicability

(a) The two (2) natural gas fired boilers are not subject to 326 IAC 12, New Source Performance Standards, (NSPS) (40 CFR Part 60.40c, Subpart Dc). The two boilers commenced construction before the applicability date of June 9, 1989.

(b) The five (5) flexographic printing presses and the two (2) letter presses are not

subject to 326 IAC 12, New Source Performance Standards, (NSPS) (40 CFR Part 60.430, Subpart QQ). The printing presses are not publication rotogravure printing presses.

(c) The five (5) flexographic printing presses are not subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) (40 CFR Part 63.820, Subpart KK). The printing presses have a single and a total HAP emissions of less than 10 and 25 tons per year, respectively. Therefore, they are not a major source of HAPs.

State Rule Applicability - Entire Source

(a) 326 IAC 2-2 (Prevention of Significant Deterioration, PSD) and 40 CFR 52.21
This source is not subject to the requirements of 326 IAC 2-2 (PSD), because the source is not one of the 28 listed source categories and the potential to emit for all regulated pollutants are less than 250 tons per year.

(b) 326 IAC 2-6 (Emission Reporting)
This source is not subject to 326 IAC 2-6 (Emission Reporting), because the source emits less than 100 tons/yr of each criteria pollutant; or the source is not located in one of the counties listed in the rule which emits 10 tons per year or more of VOC or NOx.

(c) 326 IAC 5-1 (Visible Emissions Limitations)
Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following, unless otherwise stated in this permit:

(1) Opacity shall not exceed an average of forty percent (40%) any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

(2) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

State Rule Applicability - Individual Facilities

(a) 326 IAC 6-2-4 (Particulate Emission Limitations for Sources of Indirect Heating)

(1) Pursuant to 326 IAC 6-2-4 (Emission Limitations for Facilities Specified in 326 IAC 6-2-1(c)), particulate emissions from the two (2) natural gas fired boilers will be limited as follows:

Boiler ID	Heat Input Capacity	PM Emission Limit (pound/million Btu)
BL1	10.5	0.46
BL2	17.25	0.46

The above PM limits were determined using the following equation:

$$Pt = \frac{1.09}{Q^{0.26}}$$

where: Pt = Pounds of particulate matter emitted per mmBtu heat input.
Q = Total source maximum operating capacity rating in mmBtu per hour.
Q = 27.8 mmBtu/hr

$$Pt = \frac{1.09}{(27.8)^{0.26}} = 0.46 \text{ pound per mmBtu heat input}$$

Particulate matter emissions from the two (2) natural gas fired boilers shall not exceed 0.46 pounds per mmBtu heat input. Uncontrolled particulate matter emissions from the two (2) natural gas fired boilers are 0.01 pounds per mmBtu heat input, therefore, these boilers will comply with 326 IAC 6-2-4.

(2) The two (2) space heaters are not subject to 326 IAC 6-2, because they are not sources of indirect heating.

(b) 326 IAC 6-3 (Process Operations)
Pursuant to 326 IAC 6-3 (Process Operations):

(1) The particulate matter (PM) from the starch silo shall be limited by the following:

Interpolation and extrapolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 4.10 P^{0.67}$ where: E = rate of emission in pounds per hour and
P = process weight rate in tons per hour
P = ~~16,000~~ **680** pounds per hour ~~= 8 tons per hour~~

$E = 4.10 (~~8~~ \textbf{680/2000})^{0.67}$
E = ~~16.51~~ **1.99** pounds per hour

The source is in compliance, as the limit is greater than starch handling/silo's PTE.

(2) The particulate matter (PM) from the paper scrap collection cyclone/baler shall be limited by the following:

Interpolation and extrapolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 4.10 P^{0.67}$ where E = rate of emission in pounds per hour and
P = process weight rate in tons per hour
P = 3,000 pounds per hour = 1.5 tons per hour

$E = 4.10 (1.5)^{0.67}$
E = 5.37 pounds per hour

The source is in compliance, as the limit is greater than the paper scrap collection cyclone/baler's PTE.

(c) 326 IAC 8-5-5 (Graphic Arts Operation)
The five (5) flexographic printing presses are not subject to 326 IAC 8-5-5 (Graphic Arts Operation). This section applies to packaging rotogravure, publication rotogravure, and flexographic printing sources, that were constructed after November 1, 1980 and are located

anywhere in the state, with potential emissions of twenty-five (25) tons per year or more of volatile organic compounds. The five (5) flexographic printing presses have potential emissions of less than twenty-five (25) tons per year, therefore, are not subject to 326 IAC 8-5-5 (Graphic Arts Operation).

(d) 326 IAC 8-1-6 (New Facilities; General Reduction Requirements)
This source has potential VOC emissions of less than 25 tons per year, therefore 326 IAC 8-1-6 (New Facilities; General Reduction Requirements) does not apply.

(e) 326 IAC 8 (Volatile Organic Sources)
There are no other rules in article 326 IAC 8 that would apply to this corrugated boxes manufacturing plant.

(f) 325 IAC 2-4.1-1 (New Source Toxics Control)
This rule applies to sources who construct or reconstruct a major source of hazardous air pollutants (HAP) after July 27, 1997.This corrugated boxes manufacturing plant is not subject to 326 IAC 2-4.1-1 because it is not a major source for HAP, nor major for any criteria pollutant.

Conclusion

The operation of this corrugated boxes manufacturing plant will be subject to the conditions of the attached Registration No. 053-15665-00056.

Appendix A: Emission Calculations

Company Name: Packaging Corporation of America
Address City IN Zip: 520 South First Street, Gas City, Indiana 46933
Re-Registration No.: 053-15665-00056
Reviewer: Aida De Guzman
Date Application Received: 03/05/02

Uncontrolled Potential Emissions (tons/year)

	Emissions Generating Activity						
Pollutant	Two (2) Natural Gas Space Heaters	Two (2) Natural Gas Fired Boilers	Printing Station	Application of Glues/Adhesives	Starch Silo	Paper Scrap Collection Cyclone/Baler Station	**TOTAL**
PM	0.0	0.20	0.00	0.00	3.28	13.14	16.62
PM10	0.1	0.90	0.00	0.00	3.28	13.14	17.42
SO2	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NOx	1.9	12.20	0.00	0.00	0.00	0.00	14.10
VOC	0.1	0.70	13.57	0.13	0.00	0.00	14.50
CO	1.6	10.30	0.00	0.00	0.00	0.00	11.90
total HAPs	0.0376	0.23	2.57	0.00	0.00	0.00	2.84
worst case single HAP	0.0347	0.22	2.57	0.00	0.00	0.00	2.82

Total emissions based on rated capacity at 8,760 hours/year.

Controlled Potential Emissions (tons/year)

	Emissions Generating Activity						
Pollutant	Two (2) Natural Gas Space Heaters	Two (2) Natural Gas Fired Boilers	Printing Station	Application of Glues/Adhesives	Starch Silo	Paper Scrap Collection Cyclone/Baler Station	**TOTAL**
PM	0.0	0.20	0.00	0.00	0.16	0.66	1.02
PM10	0.1	0.90	0.00	0.00	0.16	0.66	1.82
SO2	0.0	0.00	0.00	0.00	0.00	0.00	0.00
NOx	1.9	12.20	0.00	0.00	0.00	0.00	14.10
VOC	0.1	0.70	13.57	13.00	0.00	0.00	14.50
CO	1.6	10.30	0.00	0.00	0.00	0.00	11.90
total HAPs	0.0376	0.23	2.57	0.00	0.00	0.00	2.84
worst case single HAP	0.0347	0.22	2.57	0.00	0.00	0.00	2.82

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100
Small Industrial Boiler

Company Name: Packaging Corporation of America
Address City IN Zip: 520 South First Street, Gas City, Indiana 46933
Registration: 053-15665
Plt ID: 053-00056
Reviewer: Aida De Guzman
Date: 03/05/02

1 boiler, ID BL1

Heat Input Capacity MMBtu/hr	Potential Throughput MMCF/yr
10.5	92.0

	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	1.9	7.6	0.6	100.0 **see below	5.5	84.0
Potential Emission in tons/yr	0.1	0.3	0.0	4.6	0.3	3.9

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.
**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology

All emission factors are based on normal firing.
MMBtu = 1,000,000 Btu
MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu
Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98)
Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton
Note: Check the applicable rules and test methods for PM and PM10 when using the above emission factors to confirm that the correct factor is used (i.e., condensable included/not included).
See next page for HAPs emissions calculations.

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100
Small Industrial Boiler
HAPs Emissions

Company Name: Packaging Corporation of America
Address City IN Zip: 520 South First Street, Gas City, Indiana 46933
Registration: 053-15665
Plt ID: 053-00056
Reviewer: Aida De Guzman
Date: 03/05/02

1 boiler, ID BL1

HAPs - Organics

	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene
Emission Factor in lb/MMcf	2.1E-03	1.2E-03	7.5E-02	1.8E+00	3.4E-03
Potential Emission in tons/yr	9.658E-05	5.519E-05	3.449E-03	8.278E-02	1.564E-04

HAPs - Metals

	Lead	Cadmium	Chromium	Manganese	Nickel
Emission Factor in lb/MMcf	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03
Potential Emission in tons/yr	2.300E-05	5.059E-05	6.439E-05	1.748E-05	9.658E-05

Methodology is the same as previous page.

The five highest organic and metal HAPs emission factors are provided above.
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100
Small Industrial Boiler

Company Name: Packaging Corporation of America
Address City IN Zip: 520 South First Street, Gas City, Indiana 46933
CP: 053-15665
Plt ID: 053-00056
Reviewer: Aida De Guzman
1 boiler, ID BL2 **Date:** 03/05/02

Heat Input Capacity MMBtu/hr	Potential Throughput MMCF/yr
17.3	151.5

	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	1.9	7.6	0.6	100.0 **see below	5.5	84.0
Potential Emission in tons/yr	0.1	0.6	0.0	7.6	0.4	6.4

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.
**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology

All emission factors are based on normal firing.
MMBtu = 1,000,000 Btu
MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu
Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98)
Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton
Note: Check the applicable rules and test methods for PM and PM10 when using the above emission factors to confirm that the correct factor is used (i.e., condensable included/not included).
See next page for HAPs emissions calculations.

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100
Small Industrial Boiler
HAPs Emissions

Company Name: Packaging Corporation of America
Address City IN Zip: 520 South First Street, Gas City, Indiana 46933
Registration: 053-15665
Plt ID: 053-00056
Reviewer: Aida De Guzman
1 boiler, ID BL2 **Date:** 03/05/02

HAPs - Organics

	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene
Emission Factor in lb/MMcf	2.1E-03	1.2E-03	7.5E-02	1.8E+00	3.4E-03
Potential Emission in tons/yr	1.591E-04	9.093E-05	5.683E-03	1.364E-01	2.576E-04

HAPs - Metals

	Lead	Cadmium	Chromium	Manganese	Nickel
Emission Factor in lb/MMcf	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03
Potential Emission in tons/yr	3.789E-05	8.335E-05	1.061E-04	2.879E-05	1.591E-04

Methodology is the same as page 1.

The five highest organic and metal HAPs emission factors are provided above.
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100
Small Industrial Boiler

Company Name: Packaging Corporation of America
Address City IN Zip: 520 South First Street, Gas City, Indiana 46933
Registration: 053-15665
Plt ID: 053-00056
Reviewer: Aida De Guzman
2 space heaters each 2.2 mmBtu/hr **Date:** 03/05/02

Heat Input Capacity MMBtu/hr	Potential Throughput MMCF/yr
4.4	38.5

	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	1.9	7.6	0.6	100.0 **see below	5.5	84.0
Potential Emission in tons/yr	0.0	0.1	0.0	1.9	0.1	1.6

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.
**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology

All emission factors are based on normal firing.
MMBtu = 1,000,000 Btu
MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu
Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98)
Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton
Note: Check the applicable rules and test methods for PM and PM10 when using the above emission factors to confirm that the correct factor is used (i.e., condensable included/not included).
See next page for HAPs emissions calculations.

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100
Small Industrial Boiler
HAPs Emissions

Company Name: Packaging Corporation of America
Address City IN Zip: 520 South First Street, Gas City, Indiana 46933
Registration: 053-15665
Plt ID: 053-00056
Reviewer: Aida De Guzman
2 space heaters each 2.2 mmBtu/hr **Date:** 03/05/02

HAPs - Organics

	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene
Emission Factor in lb/MMcf	2.1E-03	1.2E-03	7.5E-02	1.8E+00	3.4E-03
Potential Emission in tons/yr	4.047E-05	2.313E-05	1.445E-03	3.469E-02	6.552E-05

HAPs - Metals

	Lead	Cadmium	Chromium	Manganese	Nickel
Emission Factor in lb/MMcf	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03
Potential Emission in tons/yr	9.636E-06	2.120E-05	2.698E-05	7.323E-06	4.047E-05

Methodology is the same as previous page.

The five highest organic and metal HAPs emission factors are provided above.
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

Appendix A: Emissions Calculations
VOC From Printing Press Operations

Company Name: Packaging Corporation of America
Address City IN Zip: 520 South First Street, Gas City, Indiana 46933
Registration No.: 053-15665
Plt. ID NO.: 053-00056
Reviewer: Aida De Guzman
Date Application Received: 03/05/02

THROUGHPUT

Press I.D.	MAXIMUM LINE SPEED (FEET/MIN)	MAXIMUM PRINT WIDTH (INCHES)	MMin^2/YEAR
Letter Press 118	350	78	172,187
Letter Press 122	350	92	203,092
Flexographic Printing Press 281	900	106	601,707
Flexographic Printing Press 317	750	79	373,702
Flexographic Printing Press 318	750	79	373,702
Flexographic Printing Press 324	1000	110	693,792
Proposed Flexographic Printing Press 254	850	75	402,084

* INK VOCS

Ink Name Press Id	Maximum Coverage '(lbs/MMin^2)	Weight % Volatiles	Flash Off %	Throughput (MMin^2/Year)	Emissions** (TONS/YEAR)
Letter Press 118	0.17	30.00%	100.00%	172,187	4.39
Letter Press 122	0.17	30.00%	100.00%	203,092	5.18
Flexographic Printing Press 281	0.17	2.00%	100.00%	601,707	1.02
Flexographic Printing Press 317	0.17	2.00%	100.00%	373,702	0.64
Flexographic Printing Press 318	0.17	2.00%	100.00%	373,702	0.64
Flexographic Printing Press 324	0.17	2.00%	100.00%	601,707	1.02
Proposed Flexographic Printing Press 254	0.17	2.00%	100.00%	402,084	0.68

Total VOC Emissions =	**13.57 Ton/yr**

* All inks used are mutually exclusive, Worst Case VOC emissions are from Ink 103 Yellow.

** VOC (Tons/Year) = Maximum Coverage pounds per MMin^2 * Weight % volatiles (weight % of water & organics - weight % of water = weight % organics) * Flash off * Throughput * 1 Ton per 2000 pounds

METHODOLOGY

Throughput = Maxium line speed feet per minute * Convert feet to inches * Maximum print width inches * 60 minutes per hour * 8760 hours per year = MMin^2 per Year
VOC = Maximum Coverage pounds per MMin^2 * Weight percentage volatiles (water minus organics) * Flash off * Throughput * Tons per 2000 pounds = Tons per Year
NOTE: HEAT SET OFFSET PRINTING HAS AN ASSUMED FLASH OFF OF 80%. OTHER TYPES OF PRINTERS HAVE A FLASH OFF OF 100%.
(Source -OAQPS Draft Guidance, "Control of Volatile Organic Compound Emisions from Offset Lithographic Printing (9/93))

Appendix A: Emission Calculations
HAP Emission Calculations

Company Name: Packaging Corporation of America
Address City IN Zip: 520 South First Street, Gas City, Indiana 46933
Registration No.: 053-15665
Plt. ID No.: 053-00056
Reviewer: Aida De Guzman
Date Application Received: "03/05/02

Press ID	Material	Maximum Printing Throughput (MMin^2/yr)	Maximum Coverage (lbs/MMin^2)	Weight % Glycol Ethers	Glycol Ethers Emissions (ton/yr)
118	Ink	172,187	0.17	1.07%	0.16
122	Ink	203,092	0.17	1.07%	0.18
281	Ink	601,707	0.17	1.07%	0.55
317	Ink	373,702	0.17	1.07%	0.34
318	Ink	373,702	0.17	1.07%	0.34
324	Ink	693,792	0.17	1.07%	0.63
Proposed press 254	Ink	402,084	0.17	1.07%	0.37

Total State Potential Emissions	**2.57**

METHODOLOGY

* All inks used are mutually exclusive, Worst Case HAP emissions are from Ink 2627U Purple.

HAPS emission rate (tons/yr) = Maximum Throughput (MMin^2/yr) * Maximum Coverage (lbs/MMin^2) * Weight % HAP * (1ton/2000lbs)